

Role of Reason and Science in Human Development

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Abstract

Right from the beginning of human race, the urge for exploration has prospered. Human beings explore the universe through reason based on contemplation, experiment and hypothesis. Similar is the case with the scientific process, it comprises of certain methodologies in every field of it, but the basic principle of reasoning remains the same. It is that same reasoning ability of Homo Sapiens that has made them develop tremendously and has made them the most genius among all living beings.

Here in this article we prove the effects of Reasoning on Human development through different scientific phenomenon and their consequences on the overall scenario of development. The human thought process, its development and the evolution of human mind and its progress. Basically there are two probabilities in the scientific process, one is the Epistemic chance and one is the Ontic Chance, we would enlighten these in our discussion in the article and would provide arguments from religious philosophy as well to prove our case of unparalleled role of reasoning in human development.

Key Words: Reasoning, Role of Science, Mind development, Epistemic chance, Ontic Chance, Philosophy.

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Introduction:

In the documented history of mankind, human beings have gone through different phases in throughout their journey. Right from the onset of their creation, humans have undergone changes in every phase, be it a change of culture, language, norms or human behavior itself. What we get from the textbooks of histories like Tareekh al Umam wal Malook by Tabari, Al bidayah wan Nahayah by Ibn Kathir, Al Kamil fit Tareekh by Ibn Athir and Al muqaddimah by Ibn Khaldun is a treatise of human development through ages by environmental, political, religious and economical changes. In all those phases the common and most noticeable phenomenon is the ability of humans to maneuver any kind of circumstances through their reasoning ability.

The first phase of human development included of simplest of progresses in their daily life, like lighting fire from wood spark or hunting animals with sharp arrow. Then came the phase where huge developments were witnessed like the ark of Noah and the huge structures and buildings made by the people of Aad and Thamud. At this juncture a massive wonder in the shape of the great pyramids of Egypt were build which changed the overall perception of what a human could achieve. Time passed and the age of science arrived, human behavior changed from poetic to scientific, a revolution arrived in the fields of medicine, astronomy, physics, chemistry, technology and so on. Louis Pasteur reasoned, experimented and discovered the mechanism of Pasteurization which prevented many diseases. Humans reached the moon and proved that there possibly might not be a thing present which humans can't do. The Artificial Intelligence (AI) revolutionized almost everything around. In short, reason and science developed humans

tremendously over the course of time and it lead to many discoveries and made humans enable to cope with newly developing problems with the passage of time. In this article this very role of reason and science in the development of humans would be described in detail.

Human Development:

The process of enlarging people's freedom and opportunities and improving their well being is called human development. This concept was first developed by economist Mahbub ul Haq (1).

Over the large period of time human development has changed hands through micro to macro. Through the definition of human development we understand that freedom in everything leads to human development and on a larger scale the opportunities occur therewith.

The main role played in this regard is by science and technology without a doubt. And science is a product of reason itself. Spirituality has played a role in partnership with reason to enhance human thought process, but the progress in science and technology is a product of reason. In other words reason has been the more contributing partner than spirituality, but both cannot be separated they have to go side by side. Whether the philosophy of Plato or the theory of Darwin, contemplation lead to reason which formulated philosophies and theories resulting in development of human mind specifically and human society in general. The human mind itself has gone through many phases in its development. From simpler to more complex, the human mind has travelled a long journey. As an example we see the kids of present era are much sharper than

the kids of 50 years back. That is how the human mind has gone sharper from phase to phase and from time to time. How the reasoning methodology helped developing science and hence humans themselves is described below:

How the Human Mind Progressed:

Humans are known for sporting big brains. On average, the size of primates' brains is nearly double what is expected for mammals of the same body size. Across nearly seven million years, the human brain has tripled in size, with most of this growth occurring in the past two million years.

Determining brain changes over time is tricky. We have no ancient brains to weigh on a scale. We can, however, measure the inside of ancient skulls, and a few rare fossils have preserved natural casts of the interior of skulls. Both approaches to looking at early skulls give us evidence about the volumes of ancient brains and some details about the relative sizes of major cerebral areas. For the first two thirds of our history, the size of our ancestors' brains was within the range of those of other apes living today. The species of the famous Lucy fossil, *Australopithecus afarensis*, had skulls with internal volumes of between 400 and 550 milliliters, whereas chimpanzee skulls hold around 400 ml and gorillas between 500 and 700 ml. During this time, *Australopithecine* brains started to show subtle changes in structure and shape as compared with apes. For instance, the neocortex had begun to expand, reorganizing its functions away from visual processing toward other regions of the brain.

The final third of our evolution saw nearly all the action in brain size. *Homo habilis*, the first of our genus *Homo* who appeared 1.9 million years ago, saw a

modest hop in brain size, including an expansion of a language-connected part of the frontal lobe called Broca's area. The first fossil skulls of *Homo erectus*, 1.8 million years ago, had brains averaging a bit larger than 600 ml.

From here the species embarked on a slow upward march, reaching more than 1,000 ml by 500,000 years ago. Early *Homo sapiens* had brains within the range of people today, averaging 1,200 ml or more. As our cultural and linguistic complexity, dietary needs and technological prowess took a significant leap forward at this stage, our brains grew to accommodate the changes. The shape changes we see accentuate the regions related to depth of planning, communication, problem solving and other more advanced cognitive functions.

With some evolutionary irony, the past 10,000 years of human existence actually shrank our brains. Limited nutrition in agricultural populations may have been an important driver of this trend. Industrial societies in the past 100 years, however, have seen brain size rebound, as childhood nutrition increased and disease declined. Although the past does not predict future evolution, a greater integration with technology and genetic engineering may catapult the human brain into the unknown. (2)

Evolution:

One of the biggest ideologies developed in near time was the theory of Evolution formed a century and half ago. Evolution is the word which itself complies for contemplation and reasoning, like the human mind's evolution, the evolution of ideas and systems. But its the "Theory of Evolution" which changed the overall perception of human creation. Although it was only a theory, but it later on

developed into Darwinism, a proper ideology that humans had developed from apes. How this theory was formed? Darwin explains in his letters that continuous contemplation on the Galapagos island made him reach at the theory of Evolution. (3)

As mentioned before the theories and ideologies which changed the world upside down were all results of reasoning, economic change was brought by Kant and Lenin, systematic change by Karl Marx, and Biological change by Charles Darwin and his theory of Evolution.

The recent Human Genome Project, (4) about the formation of DNA was awarded the Albany award for best project on biological research. And as discussed above research is the main branch of reasoning. It is research that makes you invent, content, comprehend and transcend to new heights of development.

The Era of Science and Reason:

Human development went through a drastic change in the upcoming centuries after the Egyptian, Roman and Greek era passed. There arrived a time where the main course of development changed into scientific development. Now the human development was started to be related and profoundly called itself as the scientific development which itself is human development now. It is up till now considered that human development is directly proportional to the scientific development. We see in the present world, the most advanced countries in terms of scientific development are considered as the most developed countries in the world. Now the parameter of success and development is science, and science is a product of reason itself.

Research:

Logical research implies that the research is guided by the rules of logical reasoning and the logical process of induction and deduction. Induction is the process of reasoning from a part to the whole whereas deduction is the process of reasoning from the premise. (5) Hence research itself becomes the integral and basic part of reasoning methodology. There's no research done in the world that is not based on reasoning, and there's no progress done in the world without research. The overall scenario of critical thinking goes through the reasoning-research gateway, ending up in great theories and inventions for the betterment and progress of the whole world.

Products of Chances:

As the human mind progressed towards scientific development, the overall scenario of progress also changed there with. In the history of developing human, most of the things happened to be the product of chances. The two most famous ideologies regarding chances are the ideology of creation of the universe and the creation of man, which are considered as chances by scientists. But it would be more important to see the classification of chances, of what they are and how they can be considered as true or false.

Epistemic Chance:

It is the more realistic chance, rather closer to nature and prove able through scientific process. Most of the scientific theories revolve around epistemic chance which is a product of nuclear masses, chemical reactions and sometimes biological changes. When considered the human development throughout

centuries by profound scientific processes, it is noted that most of the scientific products and discoveries are themselves products of chances.

Reasoning alone, leads to many new inventions which refers to the accidental discoveries and systematic discoveries both. The basic idea is to reason on a particular problem which results in something extraordinary sometimes. Most of the times the scientist intended something different and the product invented was completely the opposite. Like Jabir Bin Hayyan, the father of chemistry was looking to create gold through experiments, but instead he ended up creating Aqua Regia, the Royal water. Similarly, Isaac Newton was contemplating underneath the tree, an apple fell and he reasoned on just the felling of an apple and this reasoning changed the scenario of the whole world! Humans reached the moon because of the knowledge of gravity invented by Newton!

Ontic Chance:

It is a more unrealistic and metaphorical chance. It can be deemed as the philosophical chance. Philosophy is still very important part of the scientific process, it encompasses the whole process in a nutshell even before its beginning. It is the philosophy which inspires to do everything, hence philosophy can be named as 'Pure Reasoning'. Human development had a big part of this reasoning throughout since centuries. From the ideologies of Socrates, Aristotle and Plato to the ideologies of Karl Marx and Lenin, which were all philosophers of their time and they changed the divine and economical ideologies and systems of the whole world. This proves that contemplation leading to reasoning is very important in human development as proved from the history. For example, in Muslim history,

the famous Scholar and Philosopher Imam Shaf'i was asked about a hadith that if a man urinates in mosque, what should be done? He replied, "I had contemplated and reasoned on this problem last night and I came up with 70 probabilities on what can be done in the given case". (6)

Similarly, it is said in Gospel of Mark "Take up serpents, drink poison without being harmed, and lay their hands on the sick to heal them". (7) This verse is a philosophical verse deeming with the chance of staying unharmed after drinking poison, but this chance shouldn't be taken by the one who knows philosophy behind it. So, it is very important to learn philosophy of chance in order to know where to use it and where to stay away from it.

Religious Philosophies:

Brahma Budh philosophy of nirvana and living a life free of sorrows was based on the reason of Gautama after his experiences and contemplations done analyzing the society yet by staying away from it. This is graded as a pure philosophy when the reasoning and contemplation leads to the formulation of a religious ideology, the same happened in Buddhism where this philosophy prevails till date.

Another religious philosophy was built on the same principle, the ideology of Mahavir. The Jain religious leader lord Mahavir developed an ideology of not harming any living creature, he graded growing animals or plants for eating as cruel and would oppose killing of them to every extent. His ideology was based on a sense of sympathy to living things which he obtained by contemplating and reasoning on nature. This ideology developed into the Jain religion and even today they consider even the killing of microbes as a sin.

Ancient Greek Philosophies:

Socrates built his philosophy on deep intellect. He developed the old Greek ideologies into new social phenomenon. The believe in Jupiter, Saturn and Uranus as deities were now developed into their effects on human lives through different phases. He provided a new social order for the Greeks which was more suitable to that society as compared to Aristotle's theories and Plato's arguments. The basic functioning of his theory was to build a suitable narrative for society by contemplating and reasoning on their problems.

Another worth mentioning Greek philosopher is Pythagoras. He was way ahead of his time. Even today different religions adopt his systems and foundations he laid down for spiritual wellbeing of humans. Pythagoras developed Greek mysticism for the first time systematically, he built mystic centers and provided food and shelter for people, he held monthly sessions of huge social gatherings. All these were a result of his contemplation which lead him to develop an ideology to take away sufferings of people in the society and to develop a better spiritual health.

Today, the Islamic mysticism is inspired by Pythagoras. The mystic centers, monthly gatherings, free food and shelter is all taken from his mystic prepositions. The Muslims practice mysticism for spiritual and social purposes like Pythagoras. Even the Christian mysticism is inspired by him and from baptism, confession and abstaining from evil is all a systematic form Pythagorean mysticism.

We get an ultimate history of reasoning from 500 B.C till 2019 C.E on development and implementation of theories and ideologies for human needs.

Development of Scriptures:

The Talmud:

The Jewish Bible or the Old Testament was a simpler document which needed much explanation of the affairs described in there. Like hunting of a rabbit or ways of seeking Sabbath, in general the Mishna needed a complexly developed exegesis for meeting the daily life needs of common Jew. This led to the formation of Talmud, where more than six thousand problems are solved via reasoning methodology. Had it not been for the science of reasoning, the scripture, the religion, the Torah would have stayed stagnant at the same place from when it was revealed. It'd have lacked the all needed demand of time, it'd have lacked progress, yes the scriptures also need to undergo further reasoning in them for better understanding otherwise they'd get out dated inside a single century. Like in case, as mentioned the hunting of a rabbit was a problem because female rabbit undergoes menstruation like humans, and the hunters if would not have got a solution to this problem they would have rebelled. So consequently many problems were reasoned out in definite periods of time.

The Islamic Fiqh:

In Islam, there are four schools of thought. Namely, the Hanafi school, the Maliki school, the Shafi school and the Hanbali school. They comprise of thousands of opinions on numerous problems developed with the passage of time. In the first century of Islam, there were no schools because of the simplicity of time, but as the time progressed and science and human development started to progress

briskly, the schools of thoughts started to develop subsequently. The Quranic Tafsir was developed using both reasoning and direct quoting methodology. There were two main types of Tafasir, one is the Tafsir Bil Mathur (Which is based on hadith like Tafsir ibn Kathir) and the second Tafsir Bil Ray (The Tafsir which is based on Opinion and reasoning Like Tafsir e Kabeer). All the schools of thoughts in a nutshell are products of reasoning. The Imams of fiqh themselves developed proper reasoning methodologies and wrote extensively on it. There were centers developed to learn the art of reasoning in Medina, Baghdad and Damishq (8). Up till the seventh century Hijri, there were reasoning centers in all major cities of the Muslim world with Egypt and Cordova (Spain) being the capitals of the scientific world at that time. (9)

Ijtehad:

Ijtehad is an Arabic word linguistically meaning 'to try'. It is the technique with which problems of the latest world are solved. Muslims learned this technique through the guidelines of Prophet Muhammad (peace be upon him) himself. There are several sayings of Prophet Muhammad (peace be upon him) known as Hadith in Islamic terminology which encourages man to think, contemplate and reason on the affairs related to human development and wellbeing. This knowledge and skill of Ijtehad made Muslims progress tremendously in the medieval era, most of the development done in the world at the time of rise of Muslims was a product of reasoning/ijtihad.

Taqleed:

There was also a difference of opinion on the use of Ijtehad and reasoning methodology by a common man. Some Muslim Scholars disallowed a common

Muslim to do Ijtehad in matters of religion while others allowed it. There's a vast majority of scholars supporting both opinions, The Imams of fiqh allowed a common Muslim to do Ijtehad including Abu Hanifa, Malik, Shaf'i and Ahmed, while after some time their followers disallowed Ijtehad and asked a layman to follow these 4 Imams of fiqh blindly which is called taqleed. This resulted in making of different sects, the Ahnaf (majority group) made taqleed binding on every Muslim while Ahl e Hadith didn't force blind following of any scholar but encouraged to reason and do Ijtehad.

Religion Promotes and Supports Reason, Logic and Rationality:

Reason (*al-'aql*), the God-given ability to acquire knowledge and recognize truth, has been assigned an exalted status in Islam. Rational thought and the resultant disciplines of logic and science are essential for understanding the divine revelation and its relationship to the natural world. In contrast, indulgence in irrationality and unreasonable thinking is a means of disgrace, violence, and destruction.

It is by reason that we may know with certainty that Allah created the world and has subjected its nature to universal laws.

It is said in the Quran:

“Verily, in the creation of the heavens and earth, and the alternation of the night and the day, and the ships which sail through the sea with benefits for people, and what Allah has sent down from the heavens of rain, giving life thereby to the earth after its lifelessness and dispersing therein every

creature, and in His directing of the winds and the clouds controlled between the heaven and the earth are signs for a people who use **reason**". (10)

Indicating that the creation of the heavens and the earth and everything in between is a sign for the people who reason. It clears the Islamic ideology that nature and creation brings signs for only those people who reason, and this confirms the importance of reasoning in islam.

It is further said:

"He has subjected for you the night and day and the sun and moon, and the stars are subjected by His command. Verily, in that are signs for people who **reason**". (11)

Here again, God urges people to find Him and His commands through reasoning on His creation.

It is by reason that we may know the truth of divine revelation and the teachings of all of the prophets.

Furthermore:

"We have certainly revealed to you a Book in which is your mention. Then will you not **reason**"? (12)

God calls the readers of the Quran to reason on the book. This verse gives the divine methodology of reading the sacred scripture and that too in reading is

the reasoning methodology, reason on the meanings of the verses and only then one may find the right meaning of it.

It is by reason that we may recognize right and wrong as it is presented in the scripture and as it is known to the innate instinct (*fitrah*) that Allah embedded within the human soul.

Warning for people who don't reason:

“Surely the worst of beasts in God's sight are those that are deaf and dumb and do not **reason**”. (13)

Here is a strong warning given to the people who don't reason. They are, in the eyes of God deaf and dumb who don't reason because when God has given humans the ability to reason unlike animals, if they don't use this ability then they're losing their two out of five senses i.e sense of hearing and touching because they're going in waste without reasoning.

Similarly, It is mentioned in the Bible:

"Come now, and let us **reason** together," Says the LORD, "Though your sins are as scarlet, They will be as white as snow; Though they are red like crimson, They will be like wool". (14)

God will say on that day to the sinner that come along and let us reason on your sins. This gives a spiritual and divine aspect of reasoning as not only in this world physically but also the reasoning would be done on that day spiritually.

And also:

“Put Me in remembrance, let us argue (and **reason**) our case together; State your cause, that you may be proved right”. (15)

Here, a worldly importance of reasoning is mentioned in the bible. In the process of judiciary, the judge reasons on the evidences provided to him and then gets to a decision. So, a pillar of society, i.e justice is incomplete without reasoning. This is what is ordained in social life of a man as well to live a life of justice.

This clearly indicates that religion wants you to use your reason to find out God and the creation of God. Had it not been the case there wouldn't have been hundreds of verses revealed in the Quran regarding science and reason. It was because of that same encouragement given by the scripture that led scientists like Al-Beruni and Abul Qasim Zahrawi to excel in the fields of astronomy and medicine respectively.

There are numerous verses in the Quran regarding all the major fields of science, most prominent of them being Embryology, Oceanology, Geology, Geography, Numerology, Astronomy, Anthropology and many more. (16) All these sciences developed with time and prospered with human development gradually, but these sciences were already discussed in great detail in the Quran, and through the phenomenon of reason they were explored as humans progressed with the passage of time. Hence the fields of science causing human development were all products of reason and the attitude of reason was developed from religious scriptures.

Scientific Inventions and Discoveries:

The most suitable word for reason rhymes with the scientific inventions of the world. The world progressed with the passage of time and man developed largely through the offshoot of the flood of technology. Basically the phenomenon of scientific process through which man progressed was based on reasoning.

Beginning from the invention of air jets, when the Wright brothers studied the flight of birds and reasoned on it to create the first working air jet.

We see how immensely the human race progressed by a single invention of air jets. Then coming down to the discovery of penicillin, which was made from moldy bread was a huge progress in the field of medical science. There also came a time when we witnessed the creation of atomic bomb, the miracle of physics and the mix of chemistry taking it to the next level of hydrogen bomb. Not only big but the small inventions like mobile phones and smart devices took man to a unimaginable heights of progress which couldn't even ever be imagined just a 100 years back.

Artificial Intelligence (AI):

The magnificent inventions out of all is the artificial intelligence. The invention of computer made the man progress by leaps and bounds. The invention of smart computers took the humane perception of intelligence to another level. The perspective of natural intelligence was somewhat limited to a specific limit, but the introduction of artificial intelligence took scenario to unprecedented levels.

Mark Manson, the writer of the bestselling book 'Everything is Fucked' writes in his book "According to me, the way forward is AI". (17)

So the intellectual minds of the world are deeming AI as the way forward which tells us the importance of AI. It is a thing which has and is going to the direction of the world. It would be the cause of savior of many things and would change the minds and progresses of human beings just by a single stroke of contemplation and reason!

Adversities:

Nature comes in a combo pack, which includes both positive and negative aspects. Similar is the case with a human's reasoning ability, though it brought many pros pluses, but it also brought some cons and negatives with it. Science developed and an atomic bomb was made in the 1940's, it is based on the reasoning developed of nuclear energy from the theory of relativity by Einstein. It'd have been prosperous for the human beings had the nuclear energy was used to make electricity or other energy products, but it was used to destroy mankind by making an atom bomb out of it. Similarly, medical science developed and the tissue culture and genetic engineering techniques were developed, but it went the wrong way by risking the human life through cloning.

Global Warming:

The fields of physics and chemistry developed and many machines and new chemicals and gases were created, in the beginning they did prove to be very beneficial for humans aiding them in their works, like Cars and refrigerators, but the environmental pollution industries, cars and the Freon gas used in

refrigerators created was immense destroying climate not only for humans but natural habitats for animals as well and gases like Freon damaged the ozone layer and these all created the effect known as global warming. The earth is getting hotter and hazardous with time due to extravagant use of technology, and if the condition persists the earth wouldn't be a suitable place for life anymore. God forbid.

Misinterpretation of Scriptures:

Like the good was done with scriptures by developing their exegesis and explaining difficult points in them in a simpler way, some bad examples are also there of the wrong use of reasoning in this regard. Like in case of Quran, the Tafsir al Kabir was written by the Ahmadi group trying to prove the possibility of Prophet hood after Prophet Muhammad pbuh. It was out rightly rejected by the mainstream majority of Muslim scholars. Another Tafsir named Al Meezan by Javed Ahmed Ghamdi was written in recent times and it was opposed highly by Muslim Scholars on the basis of wrong methodology being used in the Tafsir, which was hadith rejection, and the Muslims consider the hadiths (sayings of Prophet Muhammad pbuh) as of similar value to the Quran.

Similarly, The Christians do not consider Gospel of Barnabas to be correct and they reject it as a misinterpretation of their faith.

Conclusion:

To conclude, we come up to a point that the reasoning ability of man lead him to progress in this world. The spirituality taught in all major religions brings their faith intact and help the human beings to do good to other human beings and brings them internal peace. But the main medium of that progress was science and through different sciences man was made able to cope with the newly arriving problems of the world whether the problem of brisk transportation, epidemics of diseases and the overall progress in terms of technology especially astronomy, physics and chemistry. This same reasoning ability not only gave man and edge in science of worlds but also the sciences of religion. The newly presented ideas regarding religious philosophies gave a broader reput to religions hence making them survivable with the ever changing world.

So, the importance and significance of reason and science is established, and it is proved that the progress of the human beings lies at the hands of reason and science. Both should go side by side and let the human race progress to new levels!

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